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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/389,720	09/03/1999	BRENTON L. DICKEY	MICRON.086A/	5782
20995	7590	11/26/2004	EXAMINER	
KNOBBE MARTENS OLSON & BEAR LLP			MITCHELL, JAMES M	
2040 MAIN STREET			ART UNIT	
FOURTEENTH FLOOR			PAPER NUMBER	
IRVINE, CA 92614			2813	

DATE MAILED: 11/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/389,720

Applicant(s)

DICKEY, BRENTON L.

Examiner

James M. Mitchell

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-24, 29, 30 and 59-81 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 62-80 is/are allowed.
- 6) ☐ Claim(s) 20-24, 29, 30, 59-61 and 81 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/8/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to the amendment filed September 13, 2004.

Allowable Subject Matter

The indicated allowable subject matter of claims 26 and 30 are withdrawn in view of the newly discovered reference(s) to Amagai (U.S. 6,144,102). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 20-24, 29, 30, 59 and 81 are rejected under 35 U.S.C. 102(e) as being anticipated by Amagai (U.S. 6,144,102).

Amagai discloses (Fig 3, 7, 8, 9) an assembly, comprising: (cl. 20, 81) a film including a plurality of substrate units (3; Fig 3, 9) with said plurality of substrate units being electrically interfaced with a plurality of dies (Fig 7, items 2, 9) each one of said substrate units (i.e. portion of 3 in between item 21a shown in Fig 7,9) including a substantially central cavity (area filled with item 10) adapted to receive wires (9) from a

Art Unit: 2813

corresponding die which connect to a first surface of said film (i.e. top portion; Fig 7), said dies being attached to a second surface (i.e. bottom portion) of said film with said second surface being opposed to said first surface, said film comprising polyimide (Col. 2, Lines 63-64); and a carrier (21) in mechanical communication with said first surface of said film for providing enhanced rigidity (i.e. material of carrier is metal) to said film by being sized and configured to add material at selected regions of said film (i.e. metal covers selected areas); (cl. 21 and 22) wherein said plurality of substrate units are grouped into substrate sets (Fig 9) and said substrate sets comprise three substrate units (fig 9; i.e. call each three units a set); said carrier further comprises a plurality of cross bars and wherein each cross bar is located near a substrate set (i.e. plurality of horizontal bars; Fig 9); (cl. 24) and said plurality of dies comprise lead over-chips (LOC; Fig 7); (cl. 29) wherein each one of said plurality of substrate units includes a pair of adhesive tabs (8); (cl. 30) each one of said plurality of substrate units includes a plurality of alignment holes ("sprocket holes" & "items 6; Fig 3); (cl. 59) wherein said carrier comprises a first side bar and a second side bar (Left and Right vertical bar portion of frame/carrier 21; Fig 9);

With respect to claims 20 and 81 process limitation "wherein said carrier is removed from said assembly upon completion of at least a portion of a process of manufacturing die packages," the prior art structure is the same as the claimed invention since there is no affirmative claim limitation that the carrier is removed. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a

Art Unit: 2813

product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-24, 29, 30, 59-61 and 81 rejected under 35 U.S.C. 103(a) as being unpatentable over Bettinger et al. (U.S. 6, 199,743) in combination with Amagai (U.S. 6,144,102).

Bettinger (Fig 1, 5) discloses (*assuming that completion of at least a portion of manufacturing die packages has taken place, then no carrier exist in the intermediate product*) an assembly comprising: (cl. 20, 81) a film including a plurality of substrate units (12; Fig 1) with said plurality of substrate units being electrically interfaced with a plurality of dies (Fig 5, items 14, 28) each one of said substrate units including a substantially central cavity (18) adapted to receive wires (28) from a corresponding die which connect to a first surface of said film (i.e. bottom portion; Fig 5), said dies being attached to a second surface (i.e. top portion) of said film with said second surface being opposed to said first surface, (cl. 21 and 22) wherein said plurality of substrate

units are grouped into substrate sets (Fig 1) and said substrate sets comprise three substrate units (fig 1; i.e. call each three units a set); (cl. 24) and said plurality of dies comprise lead over-chips (LOC; Fig 5); (cl. 29) wherein each one of said plurality of substrate units includes a pair of adhesive tabs (20); (cl. 30) each one of said plurality of substrate units includes a plurality of alignment holes (sprocket holes; Fig 1).

Bettinger does not appear to show that the substrate is a polyimide.

Amagai teaches the use of a polyimide substrate (Col. 2, Lines 63-64).

It would have been obvious to one of ordinary skill in the art to form the substrate of Bettinger as a polyimide in order to provide an insulating material as required by Bettinger (Col. 1, Lines 18-20) and as taught in Amagai (Col. 2, Lines 63-64).

With respect to the process limitation of claims to claims 20, 23, 59-61 and 81, such as, "...a carrier in mechanical communication with said first surface of said film for providing enhanced rigidity to said film by being sized and configured to add material at selected regions of said film...said carrier further comprises a plurality of cross bars and wherein each cross bar is located near a substrate set **wherein said carrier is removed** from said assembly..." the prior art structure is the same as the claimed invention since there is no affirmative claim limitation that the carrier is removed. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is

unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Response to Arguments

Applicant's amendment appeared to place the application in condition for allowance based on examiner's final rejection; however, upon further consideration that applicant's novelty is drawn to process limitations rather than its product, a new ground(s) of rejection has been made.

Allowable Subject Matter

Claims 62-80 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: the prior art does not disclose or make obvious a tape comprising a plurality of substrate units with each being flanked by slots which are openings as shown in Figure 2 with cavities formed in each unit to receive wires from a respective semiconductor with either **a temporary carrier** (interpreted to mean that the carrier is capable of being removed from the package without destroying the package) connected to a surface (opposite the surface the chip is attached to) of the flexible tape wherein the carrier comprises a plurality of crossbars, with adjacent cross bars having at least one substrate units therebetween, **or** that that a film includes side rails with projecting portions and a **carrier that supports the substrate/film** (on a surface opposite the surface the chip is attached to) with a first and second **side bar including spaced**

teeth and aligned with the side rails of the film, with the carrier in mechanical communication with said film including all the limitation of the independent claim.

While adding reinforcing material to a substrate /film is common in the art as exemplified by Okatomo and several other pertinent pieces of art, none show either that the carrier has teeth and that it supports the substrate/ film on a surface opposite to the surface that the chip is attached to, or that the carrier is temporary including all the limitations of the independent claims. In contrast, the prior art shows the carrier/reinforcing material as apart of the final product or is silent as to the removal of the carrier.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Art Unit: 2813

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jmm

November 12, 2004



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